ABSTRACT

A number of embodiments of rotating electrical machines and methods for winding them that provides a high space utilization and very effective winding with less likelihood of damage to the insulation of the wire of the winding during the winding process. The arrangement basically does not require the winding needle to be moved back and forth in the slot between the poles but rather employs insulating inserts that are positioned on the axial faces of the poles outside of the gaps for guiding the wire from one end to the other so as to provide the high space utilization. In one embodiment the insulating insert effectively changes the circumferential length of the coil winding that decreases in an axial direction along their length.